AFRL-SA-WP-TR-2015-0005

Sources and Levels of Stress among 70th Intelligence, Surveillance, and Reconnaissance Wing Intelligence Operators and Support Personnel

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March 2015

Final Report
for January to March 2013

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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From – To)*
1 Mar 2015	Final Technical Report	January – March 2013

4. TITLE AND SUBTITLE
Sources and Levels of Stress among 70th Intelligence, Surveillance, and Reconnaissance Wing Intelligence Operators and Support Personnel

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Lillian Prince, Wayne Chappelle, Sara Cowper, Tanya Goodman, William Thompson

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
USAF School of Aerospace Medicine
Aeromedical Research Department/FHC
2510 Fifth St.
Wright-Patterson AFB, OH 45433-7913

8. PERFORMING ORGANIZATION REPORT NUMBER

AFRL-SA-WP-TR-2015-0005

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

Distribution A: Approved for public release; distribution is unlimited. Case Number: 88ABW-2015-1648, 31 Mar 2015

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The goals of this study were to assess self-reported occupational sources of stress, as well as levels of burnout, psychological distress, and post-traumatic stress disorder symptoms among United States Air Force 70th Intelligence, Surveillance, and Reconnaissance Wing (ISRW) intelligence operators and support personnel. A total of 1,822 Airmen responded to the web-based survey, with an estimated response rate of 39%. The study revealed that the main sources of stress among 70 ISRW personnel were organizational in nature, tied to issues with leadership, management, communications, manning, and workload. Both groups also endorsed personal and home life stressors. In general, reported sources of stress were highly consistent among the intelligence operators and support personnel surveyed. The results of the study revealed lower rates of burnout and psychological distress among 70 ISRW personnel when compared to intelligence operators in other arenas of the 25th Air Force (formerly the Air Force Intelligence, Surveillance, and Reconnaissance Agency) enterprise. Subtle but notable distinctions between 70 ISRW intelligence operator and support personnel rates of burnout and psychological distress still exist, which bear consideration. Preliminary recommendations are provided for Air Force operational leaders and the medical and mental health providers who support 70 ISRW Airmen. Further research may be required to fully appreciate the complex dynamics affecting these personnel

15. SUBJECT TERMS
ISRW, post-traumatic stress disorder, intelligence operators, support personnel, stress, burnout, psychological distress

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Wayne Chappelle
U	U	U	SAR	34	19b. TELEPHONE NUMBER *(include area code)*

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

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1.0 EXECUTIVE SUMMARY

The goals of this study were to assess self-reported occupational sources of stress, as well as levels of burnout, psychological distress, and post-traumatic stress disorder symptoms among U.S. Air Force (USAF) 70th Intelligence, Surveillance, and Reconnaissance Wing (ISRW) intelligence operators and support personnel. A total of 1,822 Airmen responded to the web-based survey, with an estimated response rate of 39%. The study revealed that the main sources of stress among 70 ISRW personnel were organizational in nature, tied to issues with leadership, management, communications, manning, and workload. Both groups also endorsed personal and home life stressors. In general, reported sources of stress were highly consistent among the intelligence operators and support personnel surveyed.

Further analysis indicated that while there were no statistically significant differences in the group mean scores for intelligence operators and support personnel on general levels of burnout facets (exhaustion, cynicism, professional efficacy) and psychological distress (to include symptom, interpersonal relationship and social role distress), when assessing endorsements of elevated rates of burnout facets and distress, logistic regression analyses revealed several significant differences. Intelligence operators were 1.50 times more likely to endorse elevated burnout facets, 1.62 times more likely to endorse overall psychological distress, and 1.80 times more likely to specifically endorse symptom distress than their counterparts in the support arena. We identified demographic and operational variables predictive of elevated levels of burnout facets and psychological distress among intelligence operators.

The results of the study revealed lower rates of burnout and psychological distress among 70 ISRW personnel when compared to intelligence operators in other arenas of the 25th Air Force (formerly the Air Force Intelligence, Surveillance, and Reconnaissance Agency) enterprise. Regardless, there are still subtle but notable distinctions between 70 ISRW intelligence operator and support personnel rates of burnout and psychological distress that bear consideration. Preliminary recommendations are provided for USAF operational leaders and the medical and mental health providers who support 70 ISRW Airmen. Further research may be required to fully appreciate the complex dynamics affecting these personnel.

2.0 INTRODUCTION

The 25th Air Force (25 AF) is largely a network-centric, globally integrated institution that formed in 2007 and is headquartered at Lackland Air Force Base (AFB) in Texas [1,2]. The 70th Intelligence, Surveillance, and Reconnaissance Wing (ISRW) was first activated as an observation group in 1944, and after multiple organizational changes, was reestablished as a 25 AF wing in January 2009. The 70 ISRW is currently headquartered at Fort George Meade AFB in Maryland. It is known as the Air Force's "Cryptologic Wing" and is the lead in signals intelligence and national-tactical capabilities [3]. The 70 ISRW operates intelligence capabilities for the U.S. Air Force (USAF) as well as for the U.S. Cyber Command, National Security Agency, and Central Security Service. The wing is the largest in the USAF, comprising over 4,700 Airmen in six groups operating from 15 different locations, both nationally and globally [3].

As part of the 25 AF enterprise, the ultimate goal of the 70 ISRW is to provide accurate, relevant, timely intelligence products to key national and military decision-makers [4]. Because of the aforementioned capabilities and the rapid development of technology, the demand for

intelligence operations has grown exponentially in the past decade [5]. The amount of manpower required to complete these missions may be difficult to sustain with the ever-growing demand for intelligence operations, and as a result, Airmen within the intelligence community may be experiencing elevated levels of occupational stress and burnout.

Despite the growing demand for ISR capabilities, little is known about the occupational stressors of intelligence operators and support personnel in the largest wing within the 25 AF. In an occupational health survey of the 480 ISRW, Prince et al. began preliminary assessment of these issues among intelligence operators and support personnel [6]. Similarly, Langley conducted different analyses on the same sample with a restricted dataset [5]. Prince et al. defined operational stressors as those that are associated with available resources (e.g., manpower, equipment, training, and scheduling) to accomplish missions. Combat-related stressors are related to both active participation in enemy targeting and support of weapons employment operations and passive observation of combat events taking place around the globe. Career-related stressors pertain to difficulties in obtaining qualifications necessary for career progression and sustaining professional proficiency. The study found that the top self-reported sources of occupational stress for both intelligence operators and support personnel were operational in nature. These stressors included long work hours, shift work, additional workloads, low manning, inadequate training, and difficulties with leadership [5,6]. In a reassessment of the 480 IRSW, Prince et al. found similar operational stressors listed as top sources of stress [7]. Occupational burnout, psychological distress, and post-traumatic stress disorder (PTSD) symptoms may also be a concern for other 25 AF Airmen, to include those in the 70 ISRW.

Occupational burnout occurs when an individual experiences a combination of three specific facets: high exhaustion, high cynicism, and low professional efficacy [8,9]. Exhaustion is defined as a high state of emotional fatigue generated by a sense of having more work than one can reasonably accomplish with existing resources and time. Exhaustion is characterized by severely diminished emotional energy/reserve at the end of the day to the degree that one is unable to accomplish tasks at home. Cynicism is characterized as a negative or indifferent attitude toward work. Finally, professional efficacy focuses on satisfaction with one's work accomplishments and future expectations of effectiveness.

Psychological distress is characterized as an unpleasant psychological state with negative emotional, cognitive, behavioral, and physical changes in daily functioning. In addition, PTSD is characterized by a clustering of symptoms including re-experiencing the traumatic event, avoidance of stimuli related to the event or feelings of detachment, heightened levels of arousal, and persistently negative distortion on mood and cognition [10]. Previous studies have also identified potential demographic and occupational factors associated with elevated levels of burnout, psychological distress, and PTSD symptoms among 480 ISRW intelligence operators, including age, gender, shift schedules, and long work hours [5-7].

When considering the 70 ISRW, certain aspects of its operational and manpower constructs are similar to the 480 ISRW; however, significant organizational and mission differences exist between the two wings. While both wings fall under the cryptologic arm of the Air Force, the 480 ISRW engages in imagery-based distributed common ground system (DCGS) operations directly supporting military forces in the battlespace. Alternately, the 70 ISRW is focused on the conduct of information and cryptologic operations, which require close interaction with national intelligence agencies and support both military and national leaders [3,11]. These variances in functional interaction and chain of command could therefore

contribute to different kinds of occupational stressors and stress impacts that are unique to the 70 ISRW.

Like the 480 ISRW, intelligence personnel of the 70 ISRW more often than not are physically removed from the theater of combat. However, those assigned to the 70 ISRW rarely work with combat imagery. Manpower of the 70 ISRW instead deals primarily in electromagnetic emissions and communications associated with the battlefield, monitoring, analyzing, and disseminating cryptologic intelligence to key decision-makers [12]. Although 70 ISRW manpower possesses varied and highly technical skill sets, it is the cadre of crypto-linguists who monitor and exploit communications [12] that may have the greatest opportunity to realistically experience combat and its traumas, as well as the chaos of its aftermath. Along with these Airmen, network intelligence analysts, who are tasked to analyze and disseminate intelligence information for situational awareness and decision-making purposes, may also gain a detailed appreciation of combat events as they strive to ensure that senior leaders have immediate knowledge of conflicts and other events affecting U.S. interests [12].

Despite having a different sensory experience of combat from those who deal in the sights of warfare, 70 ISRW personnel who either exploit the sounds of warfare or fuse combat information into a comprehensive picture raise concerns among 25 AF senior leaders who think these intelligence operators, too, might be at risk for emotional distress or PTSD. This leadership concern combined with the generally high operational tempo of the intelligence community has made assessing current levels of occupational burnout, clinical distress, and PTSD within 70 ISRW units a key priority.

Although previous studies have examined and documented occupational stress concerns for Airmen in the 480 ISRW, there is a lack of literature regarding occupational dynamics within the 70 ISRW. In an effort to fill some of the gaps in literature, this study examined self-reported sources of occupational stress, burnout facets, clinical distress, and PTSD symptomology for the 70 ISRW. Like previous studies within the 480 ISRW and even the remotely piloted aircraft (RPA) communities, this study examined data garnered from intelligence operators and support personnel [6,7,13-15]. While the 70 ISRW has a variety of intelligence operators, the wing is also manned by support personnel. These individuals engage in many support functions to include administrative activities, communications, and mission technical support [5]. By comparing intelligence operators and support elements, this study served to identify similarities and differences in the stress experiences of functional groups within the 70 ISRW, while at the same time cultivating a more accurate appreciation for the health and mission readiness impacts that these stressors may inflict upon the force. Elevated rates of occupational burnout and psychological distress can negatively impact overall organizational effectiveness and force management. Physical and mental health problems, individually and combined, along with diminished mission performance, and absenteeism are often associated with burnout and distress and can directly lead to a reduction in mission readiness [16]. While these issues can pose immediate force management issues (i.e., shift manning and rotation timing), long-term, these health and readiness matters negatively impact the overall mission capability and retention of this highly trained, critically skilled, and already undermanned work force. Taking into consideration the complicated organizational construct of the 70 ISRW and its relationships to key national agencies, findings from this study will shape recommendations to improve occupational factors, streamline leadership dynamics, and enhance a healthy force model.

The purposes of this study are to assess the sources of occupational stress, facets of occupational burnout, psychological distress, and PTSD symptomology within the 70 ISRW. The objectives of the study are to assess for differences between intelligence operators and support personnel regarding the following:

(a) Most frequently cited self-reported sources of occupational stress
(b) General and elevated levels regarding facets of occupational burnout (i.e., high exhaustion, high cynicism, and low professional efficacy), psychological distress (to include social role and interpersonal relations distress)
(c) Demographic and occupational variables among intelligence operators predictive of stress outcome variables
(d) Suicidal ideation and acting out due to anger ideation

3.0 METHOD

3.1 Participants

A total of 1,822 Airmen from the 70 ISRW participated in this study. In total, 1,223 (67.12%) were intelligence operators and the remaining 599 (32.88%) individuals were categorized as support personnel. Based upon numbers of assigned personnel, the overall estimated response rate was 39%. Table 1 shows demographic items by intelligence operators and support personnel.

3.2 Instruments

3.2.1 Demographics Questionnaire. First, respondents were asked to complete items that assessed demographic (gender, age range, rank range, marital status) and operational (time in unit since current assignment, shift schedule, average hours worked per week) variables. Since participants are a part of a community where there may be strong cultural stigmas regarding the endorsement of mental health problems, no personal identifiable information (i.e., name, date of birth, etc.) was obtained to ensure respondent anonymity. See Table 1 for operational and demographic description of participants.

3.2.2 Self-Reported Sources of Occupational Stress. Participants were given an open-ended write-in response item that asked, *Please describe the top three sources of stress that directly impact your operational effectiveness*. Respondents were also asked, *If there are additional sources of stress that you wish to note, please list below*, and provided space to write in any additional sources of stress.

3.2.3 Maslach Burnout Inventory-General Survey (MBI-GS). The MBI-GS comprises 16 self-report items [8,9]. The survey is designed to assess occupational burnout. Each item is on a 7-point Likert scale ranging from *never* to *daily*. The responses are scored from 0 to 6, respectively. Three facets (exhaustion, cynicism, and professional efficacy) are assessed. Exhaustion and cynicism have five items each, and professional efficacy consists of six items. The total score range for exhaustion and cynicism is from 0 to 30, while the range for

professional efficacy is from 0 to 36. Principal component analyses were used to establish construct validity, and stability coefficients range from 0.65 to 0.67 [8,9].

Table 1. Demographics among 70 ISRW Intelligence Operators and Support Personnel

Demographics	Intelligence Operators (n=1,223)		Support Personnel (n=599)		Total (n=1,822)	
	n	%	n	%	n	%
Gender						
Male	823	67.29	467	77.96	1,290	70.80
Female	374	30.58	120	20.03	494	27.11
# that declined to report gender	26	2.13	12	2.00	38	2.09
Age Range (yr)						
18-25	368	30.09	146	24.37	514	28.21
26-30	400	32.71	142	23.71	542	29.75
31-34	175	14.31	112	18.70	287	15.75
35-39	169	13.82	97	16.19	266	14.60
40+	109	8.91	99	16.53	208	11.42
# that declined to report age	2	<1.00	3	<1.00	5	<1.00
Rank Range						
Enlisted	1,092	89.29	468	78.13	1,560	85.62
Officer	118	9.65	98	16.36	216	11.86
# that declined to report duty position	13	1.06	33	5.51	46	2.52
Marital Status						
Single	501	40.96	208	34.72	709	38.91
Married	717	58.63	390	65.11	1,107	60.76
# that declined to report marital status	5	<1.00	1	<1.00	6	<1.00
Time in Unit (mo)						
≤24	814	66.56	366	61.10	1,180	64.76
>24	406	33.20	232	38.73	638	35.02
# that declined to report time in unit	3	<1.00	1	<1.00	4	<1.00
Shift Schedule						
Standard Day	760	62.14	443	73.96	1,203	66.03
Shift Work	463	37.86	156	26.04	619	33.97
Hours Worked Per Week						
30-50	984	80.46	483	80.63	1,467	80.52
51+	236	19.30	114	19.03	350	19.21
# that declined to report hours worked	3	<1.00	2	<1.00	5	<1.00

The exhaustion subscale assesses respondent fatigue and includes items such as “I feel burned out from my work.” The *a priori* established cut-off for exhaustion is a score of 20 or greater. This threshold represents respondents who report *often – at least once a week* or higher for these items. The cynicism subscale assesses a negative or indifferent attitude toward work. For example, one cynicism item reads, “I have become less enthusiastic about my work.” Like exhaustion, cynicism has a recommended cut-off score of 20 or greater. The professional efficacy subscale assesses satisfaction with work accomplishments and future expectations of effectiveness. Lower scores for this subscale, rather than higher scores, are indicative of burnout. The *a priori* established cut-off for professional efficacy is a score of 12 or less. This threshold represents those that report *now and then – once a month or less* or lower for these items. The thresholds for identifying high levels of exhaustion and cynicism and low levels of professional efficacy are consistent with previously published research with USAF intelligence, cyber warfare, and RPA operators [6,7,13,14,17].

3.2.4 Outcome Questionnaire-45 (OQ-45.2) The OQ-45.2 is a measure comprising 45 self-report items [18]. The questionnaire is designed to assess symptoms of psychological distress experienced within the past week. Each item is on a 5-point Likert scale ranging from *never* to *always*. The responses are scored from 0 to 4, respectively. Nine items are reverse scored in an effort to reduce random responding. All 45 items are summed to yield an overall psychological distress score ranging from 0 to 180. A recommended cut-off score of 63 or greater indicates elevated levels of psychological distress. Concurrent validity with similar scales has been established, and reported coefficients range in the mid-0.80s [18]. The cut-off score for assessing elevated levels of psychological distress is consistent with previously published research with USAF intelligence, cyber warfare, and RPA operators [6,14,15,17,19].

The OQ-45.2 is divided into three subscales: symptom distress, interpersonal relations distress, and social role distress.

1. ***Symptom Distress*:** The symptom distress subscale comprises 25 items and has a score ranging from 0 to 100. This question sequence assesses for indicators suggesting the presence of, or elevated risk for, emotional disorders such as anxiety or depression. Ratings are based upon experiences over a 1-week period, with a subscale score cut-off of 36 or more. For symptom distress, the cut-off is indicative of respondents experiencing symptoms of stress-related illnesses.

2. ***Interpersonal Relationship Distress***: The interpersonal relations subscale comprises 11 items and has a score ranging from 0 to 44. This question sequence assesses for difficulties in effectively relating to those with whom one has close, personal relationships (e.g., spouses, significant others, children) and is characterized by complaints such as loneliness, conflicts with others, as well as family and marital problems. Ratings are based upon experiences over a 1-week period, with a subscale score cut-off of 15 or more. The cut-off for interpersonal relations distress represents elevated relationship stress, including general feelings of loneliness.

3. ***Social Role Distress***: The social role subscale comprises nine items and a score ranging from 0 to 36. This question sequence assesses for difficulties in conducting one's public or professional interactions, and it is characterized by complaints such as work stress and dissatisfaction, as well as the diminished ability to effectively interact with others at work. Ratings are based upon experiences over a 1-week period, with a subscale score cut-off of 12 or more. For social role distress, the cut-off is indicative of role stress (such as employee, student) related difficulties.

The OQ-45.2 also contains "critical items" that assess suicidal ideation, as well as feelings of acting out in anger.

3.2.5 PTSD Checklist-Military Version (PCL-M). The PCL-M is a survey comprising 17 self-report items [20-23]. It is designed to assess symptoms of PTSD experienced within the last month. Items are based on the symptoms outlined in the Diagnostic and Statistical Manual of Mental Disorders-4th Edition, which characterizes PTSD as a state of distress that includes a clustering of emotional, behavioral, and cognitive changes associated with high distress and negatively impacting occupational/social functioning. PTSD is often associated with exposure to

(or witnessing of) death or potential death of oneself or others and accompanied by an emotional state of helplessness and/or horror.

The clustering of symptoms is in the following areas: re-experiencing, avoidance, arousal, and altered cognitive mood [10]. The PCL-M is designed specifically for military experiences and is used with both veterans and active duty service members to screen for symptoms of PTSD, diagnose PTSD as part of a clinical interview, and monitor changes during treatment [20]. All items are on a 5-point Likert scale ranging from *not at all* to *extremely*. The items are scored from 1 to 5, respectively. All 17 items sum to yield a total score ranging from 17 to 85. A total cut-off score of 50 or greater is indicative of experiencing high levels of PTSD symptoms and was recommended based on research that evaluated the sensitivity and specificity of PCL-M total cut-off scores [21,22].

3.3 Procedure

Invitations to participate in the survey were sent via a mass e-mail to all intelligence operators and support personnel throughout the 70 ISRW organization assigned to units in the United States and foreign locations across the globe. To reduce the potential for perceived coercion due to requests for participation, the e-mail invitation to participate informed Airmen that participation was voluntary and anonymous.

The group e-mail invitation to participate had an internet link to the USAF School of Aerospace Medicine web-based survey that contained an opening page with an introductory script further explaining the survey was conducted by an independent agency and participation was voluntary and anonymous. Additionally, the introductory script on the opening page of the survey further explained to potential participants the nature, purpose, and instructions of the study. The introductory page also informed participants that operational leadership would not have access to individual responses and results would be presented in a summarized format at the squadron level. The introductory script informed participants they could withdraw at any time without negative repercussions.

Before participants could begin the electronic survey, they were asked to respond to a question asking if they understood the nature, purpose, and instructions of the survey and were voluntarily consenting to participate. Those who endorsed “yes” were then allowed to proceed and take the survey. Those who endorsed “no” were not given the survey and were redirected to another web page that instructed them on how to contact the independent researchers of the study for additional information.

The survey was distributed electronically via a Department of Defense-approved electronic survey tool. The survey was open to all 70 ISRW intelligence operators and support personnel over a 6-week period and re-advertised every other week. Participants who completed the survey were instructed on how to obtain the results of the study and when information would be available. Results were aggregated at the squadron level without any identification of individual responses. In general, the survey took 25-30 minutes to complete. The purpose and methodology of the study were reviewed and approved by the Air Force Research Laboratory Institutional Review Board.

3.4 Data Analysis

Qualitative analyses were conducted for the open-ended, write-in responses to the sources of occupational stress. Participants' textual responses were analyzed and grouped into categories by three subject matter experts and behavioral scientists. Each self-reported source of stress constituted one tally, and stressors were coded such that a respondent could have multiple tallies in a single category. Similar categories were combined into facets. For an example of response coding, participant responses such as *too much work to do*, *long work hours*, and *not enough manpower* were coded into Workload and Manning. Each facet of coded responses was tabulated separately for intelligence operators and support personnel.

Frequencies were computed for demographic and occupational variables. All qualitative responses describing self-reported sources of stress were categorized and sorted into facets. Frequencies for all stress facets were obtained for intelligence operators and support personnel, then ranked in descending order. Descriptive statistics were computed for all stress scales. Univariate analyses of covariance (ANCOVAs) were performed to assess group differences between intelligence operators and support personnel on general levels of burnout facets, clinical distress, clinical distress subscales, and PTSD. Covariates in the analyses included age range, rank range, and gender. A statistical significance level of $p < 0.05$ was established *a priori*. Results were not considered clinically significant unless they were statistically significant, had a Hedges' *g* effect size of 0.40 or greater, and had a power of 0.80 or greater. Results that did not meet these criteria were not considered representative of meaningful group differences.

Frequencies for intelligence operators and support personnel were obtained for dichotomous threshold variables representing those meeting and those falling below the cut-offs for elevated levels of burnout facets, clinical distress, clinical distress subscales, and PTSD symptomology. Contingency tables, Pearson chi-square analyses, and relative risk (RR) ratios were computed to assess differences between intelligence operators and support personnel on elevated levels of burnout facets, clinical distress, clinical distress subscales, and PTSD symptomology.

Logistic regressions were run for intelligence operators only to assess the predictive power of demographic (gender, age range, and marital status) and occupational (rank range, time in current unit, shift schedule, and hours worked per week) variables in terms of elevated levels of burnout facets, clinical distress, and clinical distress subscales. Exp(B) odds ratios were used to compute approximate RR values [24]. Relative risk values were reported instead of odds ratios because the value of interest for this study regarded only the high/elevated category of the stress threshold variables, as opposed to the overall sample considered in the odds ratio statistic.

The comparison categories for the logistic regressions were as follows: male, age range 40+, officer, married, 0-24 months in current unit, standard shift, and 30-50 hours per week. The sample size assumption of n greater than or equal to 30 for both criterion groups was not met for elevated levels of PTSD symptomology. Therefore, similar contingency table analyses, chi-square or Fisher's exact tests, and RR ratios were computed for the comparison between demographic and occupational variables with elevated levels of PTSD symptomology for intelligence operators only.

In addition, frequencies were obtained for intelligence operators and support personnel meeting all three burnout thresholds, as well as for those endorsing OQ-45.2 critical items regarding suicidal ideation and acting out aggression.

4.0 RESULTS

4.1 Sources of High Occupational Stress

A total of 778 out of 1,223 (63.61%) intelligence operators and 361 out of 599 (60.27%) support personnel responded to the write-in response items asking participants to describe their top sources of occupational stress. All open response textual responses were coded separately and grouped into 77 categories by researchers and subject matter experts. These categories were divided into 14 facets containing similar categories to compute frequencies for data analysis. Intelligence operators and support personnel shared the same five most common self-reported sources of occupational stress. However, these facets were not ranked in the same order. Table 2 shows the top five self-reported stress facets for intelligence operators and support personnel.

Table 2. Top Reported Sources of Occupational Stress among 70 ISRW Intelligence Operators and Support Personnel

Intelligence Operators (n = 778)			Support Personnel (n = 361)		
Stress Facets	**n**	**%**	**Stress Facets**	**n**	**%**
Intra-Organizational Leadership and Communication - Micro (e.g., communication issues within units, intra-organizational conflicts, civilian/military workforce disconnects)	233	29.95	**Intra-Organizational Leadership and Communication - Micro** (e.g., communication issues within units, intra-organizational conflicts, civilian/military workforce disconnects)	127	35.18
Workload and Manning (e.g., work overload/having too much to do, poorly defined missions, long work hours)	206	26.48	**Organizational Management** (e.g., organizational ineffectiveness and inefficiency, as well as poor prioritization, task management processes)	103	28.53
Organizational Management (e.g., organizational ineffectiveness and inefficiency, as well as poor prioritization, task management processes)	193	24.81	**Workload and Manning** (e.g., work overload/having too much to do, poorly defined missions, long work hours)	98	27.15
Personal and Home Life Stress (e.g., personal finances, work/life balance, geographic separation from family)	163	20.95	**Administrative Workload** (e.g., poor administrative support, administrative needs interfering with operational needs)	60	16.62
Administrative Support (e.g., poor administrative support, administrative needs interfering with operational needs)	162	20.82	**Personal and Home Life Stress** (e.g., personal finances, work/life balance, geographic separation from family)	57	15.79

4.2 Occupational Burnout (MBI-GS)

4.2.1 Exhaustion. The average exhaustion score was 10.37 (standard deviation (*SD*) = 7.85) for intelligence operators and 8.93 (*SD* = 7.21) for support personnel. Although an ANCOVA controlling for age range, rank range, and gender assessing for a difference between intelligence operators (estimated marginal Mean (*EMM*) = 10.36, *SD* = 7.67) and support personnel (*EMM* = 9.05, *SD* = 7.71) on exhaustion was statistically significant, the magnitude of the difference was small, $F(1, 1728) = 10.67$, $p < 0.01$, $g = 0.17$ (95% confidence interval (CI) = 0.12 – 0.22).

A total of 190 out of 1,220 (15.57%) intelligence operators and 62 out of 596 (10.40%) support personnel reported high exhaustion scores of 20 or greater (see Figure 1). Subsequent RR analysis revealed intelligence operators were 1.50 times (95% CI = 1.14 – 1.96) more likely to endorse high exhaustion than support personnel, $\chi^2 (1) = 8.96$, $p < 0.01$. Table 3 reports the results of logistical regression assessing for demographic and occupational predictors of high exhaustion among intelligence operators only.

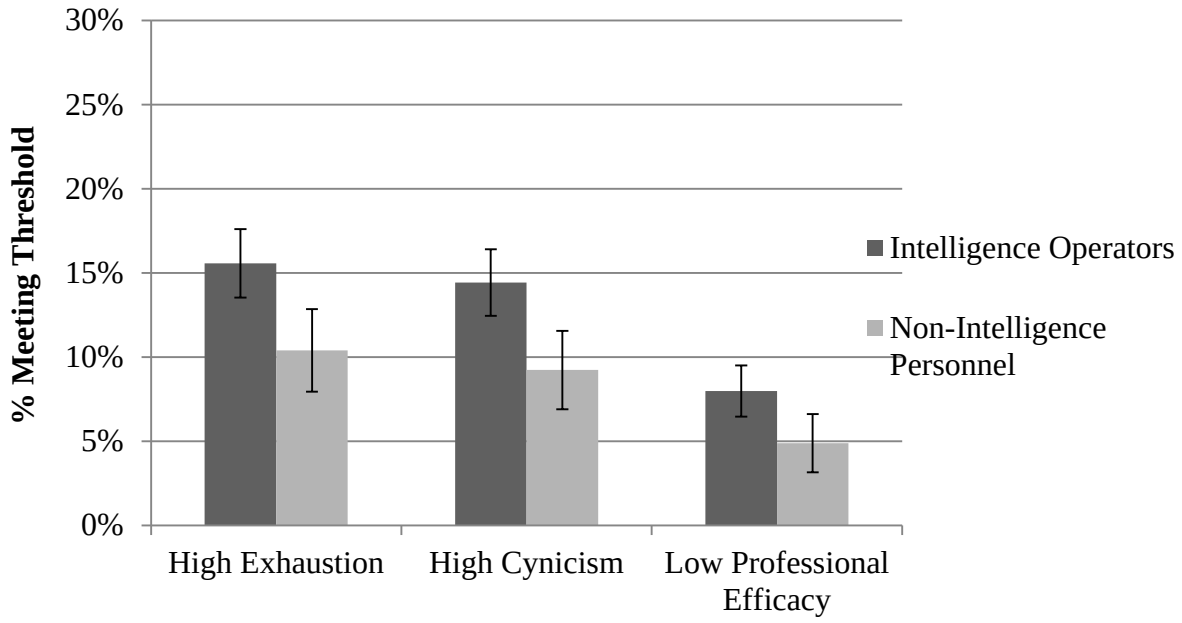

Figure 1. Percentages reporting high exhaustion, high cynicism, and low professional efficacy. *95% CIs shown.*

4.2.2 Cynicism. The average cynicism score was 9.88 (*SD* = 7.74) for intelligence operators and 8.43 (*SD* = 7.27) for support personnel. Although an ANCOVA assessing for a difference between intelligence operators (*EMM* = 9.78, *SD* = 7.50) and support personnel (*EMM* = 8.84, *SD* = 7.54) was statistically significant, the magnitude of the difference was small, $F(1, 1720) = 5.85$, $p < 0.05$, $g = 0.13$ (95% CI = 0.07 – 0.18).

Table 3. Logistic Regression Results for MBI-GS Thresholds – 70 ISRW Intelligence Operators Only

Demographics	High Exhaustion				High Cynicism				Low Professional Efficacy			
	RR (95% CI)	χ^2 (*df*)	*p*	Cox & Snell R^2	RR (95% CI)	χ^2 (*df*)	*p*	Cox & Snell R^2	RR (95% CI)	χ^2 (*df*)	*p*	Cox & Snell R^2
Gender												
Male[a]		7.68(1)	<.01	.01		0.13(1)	.72	.00		5.83(1)	<.05	.00
Female	1.47[b] (1.13-1.92)				0.95 (0.70-1.28)				1.63[b] (1.11-2.41)			
Age Range (yr)												
18-25	1.56 (0.87-2.78)				1.97 (1.01-3.85)				1.90 (0.82-4.37)			
26-30	1.35 (0.75-2.41)				1.98 (1.02-3.85)				1.46 (0.63-3.41)			
31-34	1.66 (0.90-3.08)				1.60 (0.77-3.33)				1.25 (0.48-3.24)			
35-39	1.29 (0.67-2.47)				1.29 (0.60-2.77)				0.97 (0.35-2.64)			
40+[a]		3.94(4)	.41	.00		8.37(4)	.08	.01		5.88(4)	.21	.00
Rank Range												
Enlisted	1.59 (0.92-2.77)				2.58[b] (1.24-5.36)				1.96 (0.81-4.73)			
Officer[a]		3.24(1)	.07	.00		9.22(1)	<.01	.01		2.84(1)	.09	.00
Marital Status												
Single	1.26 (0.97-1.64)				1.42[b] (1.08-1.87)				1.41 (0.96-2.06)			
Married[a]		2.98(1)	.08	.00		6.25(1)	<.01	.01		3.04(1)	.08	.00
Time in Unit (mo)												
≤24[a]		9.96(1)	<.01	.01		14.60(1)	<.01	.01		2.77(1)	.10	.00
>24	1.54[b] (1.18-2.00)				1.72[b] (1.31-2.27)				0.70 (0.45-1.08)			
Shift Schedule												
Standard Day[a]		16.41(1)	<.01	.01		9.38(1)	<.01	.01		0.30(1)	.59	.00
Shift Work	1.72[b] (1.32-2.23)				1.54[b] (1.17-2.02)				0.90 (0.60-1.34)			
Hours Worked per Week												
30-50[a]		23.43(1)	<.01	.02		0.02(1)	.89	.00		0.02(1)	.89	.00
51+	2.04[b] (1.56-2.67)				0.98 (0.69-1.39)				0.96 (0.59-1.58)			

[a]Comparison category for predictor.
[b]Significant chi-square ($p < .05$).

A total of 175 out of 1,213 (14.43%) intelligence operators and 55 out of 595 (9.24%) support personnel reported high cynicism scores of 20 or greater (see Figure 1). Subsequent RR analyses revealed intelligence operators were 1.56 times (95% CI = 1.17 – 2.08) more likely to endorse high cynicism than support personnel, χ^2 (1) = 9.66, $p < 0.01$. Table 3 reports the results of logistical regression assessing for demographic and occupational predictors of high cynicism among intelligence operators only.

4.2.3 Professional Efficacy. The mean professional efficacy score was 24.40 (*SD* = 7.91) for intelligence operators and 25.92 (*SD* = 7.31) for support personnel. Although an ANCOVA assessing for a difference between intelligence operators (*EMM* = 24.47, *SD* = 7.67) and support personnel (*EMM* = 25.55, *SD* = 7.71) was statistically significant, the magnitude of the difference was small, $F(1, 1721) = 7.25$, $p < 0.01$, $g = 0.14$ (95% CI = 0.09 – 0.19).

A total of 97 out of 1,215 (7.98%) intelligence operators and 29 out of 594 (4.88%) support personnel reported low professional efficacy scores of 12 or less (see Figure 1). Subsequent RR analyses revealed intelligence operators were 1.64 times (95% CI = 1.09 – 2.45) more likely to endorse low professional efficacy than support personnel, χ^2 (1) = 5.92, $p < 0.01$. Table 3 reports the results of logistical regression assessing for demographic and occupational predictors of low professional efficacy among intelligence operators only.

4.2.4 Overall Burnout. A total of 21 out of 1,213 (1.73%) intelligence operators and 7 out of 594 (1.18%) support personnel had responses indicative of the syndrome of burnout (i.e., simultaneously reporting high exhaustion, high cynicism, and low professional efficacy). A chi-square analysis was run to identify differences between intelligence operators and support personnel on overall burnout. Differences were not identified between intelligence operators and support personnel on burnout, χ^2 (1) = 0.80, $p = 0.37$.

4.3 Symptoms of Psychological Distress (OQ-45.2)

4.3.1 Total Score. The average psychological distress score was 36.18 (*SD* = 21.65) for intelligence operators and 32.44 (*SD* = 20.46) for support personnel. Although an ANCOVA assessing for a difference between intelligence operators (*EMM* = 36.00, *SD* = 21.22) and support personnel (*EMM* = 32.95, *SD* = 21.33) was significant, the magnitude of the difference was small, $F(1, 1711) = 7.53$, $p < 0.01$, $g = 0.14$ (95% CI = 0.09 – 0.20).

A total of 147 out of 1,211 (12.14%) intelligence operators and 44 out of 588 (7.48%) support personnel had elevated levels of clinical distress, with scores of 63 or greater. Subsequent RR analyses revealed intelligence operators were 1.62 times (95% CI = 1.18 – 2.24) more likely to endorse elevated levels of psychological distress than support personnel, χ^2 (1) = 9.04, $p < 0.01$. Table 4 shows the results of logistical regression assessing for demographic and occupational predictors of elevated levels of psychological distress among intelligence operators only.

Table 4. Logistic Regression Results for OQ-45.2 Thresholds – 70 ISRW Intelligence Operators Only

Demographics	Elevated Levels of Clinical Distress				High Symptom Distress				High Interpersonal Relations Distress				High Social Role Distress			
	RR (95% CI)	χ^2 (*df*)	*p*	Cox & Snell R^2	RR (95% CI)	χ^2 (*df*)	*p*	Cox & Snell R^2	RR (95% CI)	χ^2 (*df*)	*p*	Cox & Snell R^2	RR (95% CI)	χ^2 (*df*)	*p*	Cox & Snell R^2
Gender																
Male[a]		2.25(1)	.13	.00		5.03(1)	<.05	.00		0.03(1)	.86	.00		0.28(1)	.60	.00
Female	1.20 (0.93-1.75)				1.40[b] (1.06-2.00)				1.02 (0.79-1.32)				1.06 (0.85-1.32)			
Age Range (yr)																
18-25	1.01 (0.54-1.91)				1.06 (0.54-2.06)				1.53 (0.88-2.67)				0.88 (0.58-1.34)			
26-30	1.18 (0.64-2.19)				1.03 (0.53-1.99)				1.62 (0.94-2.80)				1.16 (0.78-1.74)			
31-34	1.50 (0.78-2.90)				1.35 (0.66-2.73)				1.69 (0.94-3.05)				1.36 (0.88-2.08)			
35-39	1.35 (0.69-2.65)				1.29 (0.63-2.65)				1.39 (0.75-2.56)				1.15 (0.73-1.80)			
40+[a]		3.52(4)	.47	.00		1.83(4)	.77	.00		4.33(4)	.36	.00		8.31(4)	.08	.01
Rank Range																
Enlisted	2.11[b] (1.01-4.41)				1.79 (0.86-3.75)				2.26[b] (1.24-4.14)				1.60[b] (1.07-2.63)			
Officer[a]		5.24(1)	<.05	.00		2.94(1)	.09	.00		9.69(1)	<.01	.01		6.30(1)	<.01	.01
Marital Status																
Single	1.61[b] (1.19-2.18)				1.38 (0.99-1.92)				1.78[b] (1.41-2.26)				1.12 (0.91-1.37)			
Married[a]		9.47(1)	<.01	.01		3.62(1)	.06	.00		22.89(1)	<.01	.02		1.16(1)	.28	.00
Time in Unit (mo)																
≤24[a]		1.32(1)	.25	.00		4.83(1)	<.05	.00		0.10(1)	.75	.00		5.94(1)	<.01	.00
>24	1.20 (0.88-1.64)				1.46[b] (1.05-2.04)				0.96 (0.74-1.24)				1.30[b] (1.06-1.60)			
Shift Schedule																
Standard Day[a]		7.88(1)	<.01	.01		1.15(1)	.28	.00		5.21(1)	<.05	.00		19.75(1)	<.01	.02
Shift Work	1.55[b] (1.14-2.09)				1.20 (0.86-1.60)				1.32[b] (1.04-1.68)				1.59[b] (1.30-1.94)			
Hours Worked per Week																
30-50[a]		2.91(1)	.09	.00		1.31(1)	.25	.00		1.32(1)	.25	.00		17.93(1)	<.01	.01
51+	1.37 (0.97-1.94)				1.26 (0.86-1.87)				1.19 (0.89-1.57)				1.65[b] (1.33-2.05)			

[a]Comparison category for predictor.
[b]Significant chi-square ($p < .05$).

4.3.2 Symptom Distress. The average symptom distress score was 19.06 (*SD* = 12.82) for intelligence operators and 16.30 (*SD* = 11.49) for support personnel. While statistically significant, an ANCOVA did not identify differences between intelligence operators (*EMM* = 18.94, *SD* = 12.34) and support personnel (*EMM* = 16.64, *SD* = 12.41) that met the clinical significance criteria for symptom distress, $F(1, 1711) = 12.62$, $p < 0.01$, $g = 0.19$ (95% CI = 0.13 – 0.24). Group differences for the covariates were not identified.

A total of 126 out of 1,211 (10.40%) intelligence operators and 34 out of 588 (5.78%) support personnel had high symptom distress scores of 36 or greater. A chi-square analysis was run to identify differences between intelligence operators and support personnel on high symptom distress. Subsequent relative risks identified that intelligence operators were 1.80 times (95% CI = 1.25 – 2.59) more likely to endorse high symptom distress than support personnel, $\chi^2 (1) = 10.44$, $p < 0.01$. Table 4 shows the logistic regression results with demographic and occupational variables predicting high symptom distress group membership for intelligence operators only. Females and those in their current unit more than 24 months were predictive of high symptom distress.

4.3.3 Interpersonal Relations Distress. The average interpersonal relations distress score was 8.52 (*SD* = 6.59) for intelligence operators and 7.91 (*SD* = 6.61) for support personnel. An ANCOVA did not identify differences between intelligence operators (*EMM* = 8.46, *SD* = 6.56) and support personnel (*EMM* = 8.01, *SD* = 6.59) for interpersonal relations distress, $F(1, 1711) = 1.73$, $p = 0.19$, $g = 0.07$ (95% CI = 0.02 – 0.12).

A total of 223 out of 1,211 (18.41%) intelligence operators and 89 out of 588 (15.14%) support personnel had high interpersonal relations distress scores of 15 or more. Subsequent RR analyses did not identify differences in the proportions of intelligence operators and support personnel reporting high levels of interpersonal relations distress, $\chi^2 (1) = 2.97$, $p = 0.08$. Table 4 shows the results of logistical regression assessing for demographic and occupational predictors of elevated levels of interpersonal relations distress among intelligence operators only.

4.3.4 Social Role Distress. The average social role distress score was 8.60 (*SD* = 4.53) for intelligence operators and 8.23 (*SD* = 4.34) for support personnel. An ANCOVA did not identify differences between intelligence operators (*EMM* = 8.60, *SD* = 4.48) and support personnel (*EMM* = 8.30, *SD* = 4.50) on social role distress, $F(1, 1711) = 1.66$, $p = 0.20$, $g = 0.07$ (95% CI = 0.02 – 0.12).

A total of 284 out of 1,211 (23.45%) intelligence operators and 124 out of 588 (21.09%) support personnel had high social role distress scores of 12 or greater. Subsequent RR analyses did not identify differences in the proportion of intelligence operators and support personnel reporting high social role distress, $\chi^2 (1) = 1.26$, $p = 0.26$. Table 4 shows the results of logistical regression assessing for demographic and occupational predictors of elevated levels of social role distress among intelligence operators only.

4.4 Post-Traumatic Stress (PCL-M)

Figure 2 shows the percentage of individuals with a PCL-M total score of 50 or greater. The average PCL-M score was 21.70 (*SD* = 8.19) for intelligence operators and 20.58 (*SD* = 7.51) for support personnel. While statistically significant, an ANCOVA did not identify differences between intelligence operators (*EMM* = 21.72, *SD* = 8.11) and support personnel

(*EMM* = 20.73, *SD* = 8.15) that met the clinical significance criteria on PTSD symptomology, $F(1, 1707) = 5.47$, $p < 0.05$, $g = 0.12$ (95% CI = 0.07 – 0.17). Group differences for the covariates were not identified.

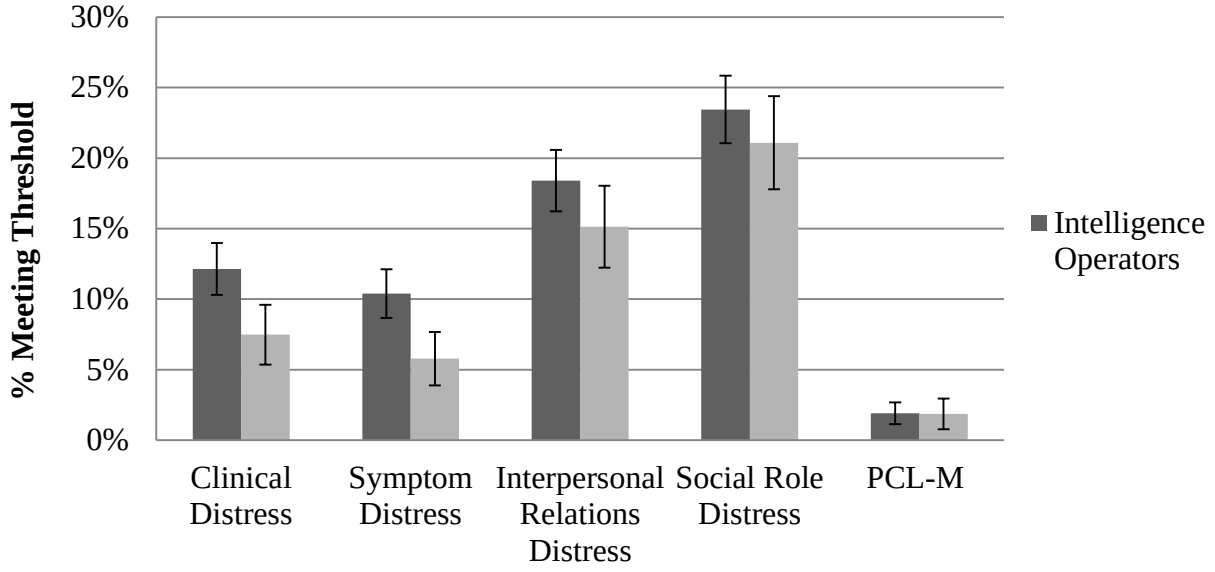

Figure 2. Percentages of individuals with high psychological distress, symptom distress, interpersonal relations distress, and social role distress. *95% CIs shown.*

A total of 23 out of 1,202 (1.91%) intelligence operators and 11 out of 589 (1.87%) support personnel had PCL-M scores of 50 or greater. A chi-square analysis was run to identify differences between intelligence operators and support personnel on high PTSD symptomology. A subsequent chi-square analysis did not identify differences between intelligence operators and support personnel on high PTSD symptomology, χ^2 (1) = 0.00, $p = 0.95$. Table 5 shows contingency table results for intelligence operators only, comparing those meeting the threshold for PCL-M (a score of 50 or greater) against those with a score of 17-49, with demographic and occupational variables. Those in their current unit more than 24 months and those working 51 or more hours a week were more likely to endorse high PTSD symptomology than their counterparts.

Table 5. PCL-M Threshold Contingency Table Results – 70 ISRW Intelligence Operators Only

Demographics	PTSD Symptomology				
	RR	95% CI	χ^2	*df*	*p*
Gender					
Male[a]					
Female	1.43	(0.63-3.28)	0.73	1	.39
Age Range (yr)					
18-25	1.78	(0.22-14.63)		1	1.00[b]
26-30	1.61	(0.20-13.20)		1	1.00[b]
31-34	3.05	(0.36-25.72)		1	.41[b]
35-39	3.17	(0.38-26.79)		1	.41[b]
40+ [a]					
Rank Range					
Enlisted	0.72	(0.22-2.39)		1	.48[b]
Officer[a]					
Marital Status					
Single	1.60	(0.71-3.59)	1.30	1	.25
Married[a]					
Time in Unit (mo)					
≤24[a]					
>24	3.73[c]	(1.60-8.73)	10.64	1	<.01
Shift Schedule					
Standard Day[a]					
Shift Work	2.15	(0.95-4.86)	3.54	1	.06
Hours Worked per Week					
30-50[a]					
51+	3.26[c]	(1.45-7.34)		1	<.01[b]

[a]Predictor comparison category.
[b]Fisher's exact test results.
[c]Significant Pearson chi-square or Fisher's exact test at $p<.05$.

5.0 DISCUSSION

5.1 Sources of Stress Affecting Operational Effectiveness

Intelligence operators and support personnel reported similar sources of high occupational stress when asked in an open response format to list their top sources of stress. For both groups, the same five sources of stress were reported most often, with four involving operational stressors and one involving personal life stressors. The most common reported facets were Intra-Organizational Leadership and Communication – Micro (i.e., *communication issues within units*, *intra-organizational conflicts*, and *civilian/military workforce disconnects*); Workload and Manning (i.e., *work overload/having too much to do*, *poorly defined missions*, and *long work hours*); Organizational Management (i.e., *organizational ineffectiveness and inefficiency*, as well as *poor prioritization and task management processes*); Administrative Workload (i.e., *poor administrative support* and *administrative needs interfering with operational needs*); and Personal and Home Life Stressors (i.e., *personal finances*, *work/life balance*, and *geographic separation from family*).

These results are similar to the top sources of occupational stress reported by those within the 480 ISRW, as well as Airmen in the RPA and cyber communities who also conduct around-

the-clock, rotating shift work operations in support of global military operations [6,7,13,14]. While these stressors are not entirely unique, certain dynamics within the 70 ISRW leadership and communication architecture make organizational leadership, communications, and management stand out as particularly significant sources of stress. Overall, the 70 ISRW workforce is heavily integrated with that of key national agencies; both intelligence operators and support personnel must contend with multiple chains of leadership and multiple tasking and communications channels to meet their operational and administrative requirements. The complexity of this architecture, combined with the cultural differences between military and civilian organizations, makes an already difficult mission more challenging to 70 ISRW Airmen and may exacerbate the other sources of stress identified in the study, such as workload and long hours.

5.2 Facets of Occupational Burnout

5.2.1 Emotional Exhaustion. As mentioned previously, emotional exhaustion is a subjective state regarding the perceived sense of depleted energy due to work-related stress. High emotional exhaustion is often a reflection of extreme emotional fatigue in response to demanding occupational stressors and work environment. According to the results of the study, 1 out of 15 intelligence operators experiences high levels of emotional exhaustion. Intelligence operators were more likely to report higher levels of exhaustion in general and elevated levels of exhaustion (15.57%) when compared with their support personnel counterparts (10.40%). The presence of a difference in levels of elevated emotional exhaustion between DCGS intelligence operators (24-26%) and support personnel (11-12%) is seen to a greater degree in previous studies of the 480 ISRW [6].

Furthermore, intelligence operators who were female, working in their current unit more than 24 months, working shift work (swing or night shift), or working 51 or more hours a week were more likely to report elevated levels of exhaustion. Similar findings were observed within the 480 ISRW, where female operators, as well as anyone in an intelligence unit for more than 24 months, or generally working 51+ hours, were more likely to endorse elevated levels of exhaustion [6]. This finding speaks volumes about the impact of intelligence operations on 25 AF manpower overall and highlights differences between its wings and missions. Regardless of these distinctions, the notable presence of elevated exhaustion among females, those working shift work, and those working greater than 50 hours a week warrants monitoring by 70 ISRW line and medical leadership. Line leadership efforts to collaborate with medical and mental health resources in a proactive manner may be effective in reducing existing rates of exhaustion, or at least preempting an increase in elevated rates in this arena.

5.2.2 Cynicism. As mentioned previously, cynicism is a sign of indifference or a distant attitude toward work (e.g., declining sense of enthusiasm for work), which may or may not be related to emotional exhaustion. The results of the study reveal 70 ISRW intelligence operators are more likely to report higher levels of cynicism in general and elevated levels of cynicism (14.43%) when compared to support personnel (9.24%). These results are proportional to an earlier study assessing rates and differences in levels of high cynicism among 480 ISRW DCGS intelligence operators (17%) and support personnel (12%) [6]. Further comparison with other active duty virtual warrior communities shows that the rate of cynicism among intelligence operators is similar to USAF RPA (13%) and active duty cyber warfare operators (16%) [13,14].

Furthermore, intelligence operators who were enlisted, those who were single, those in current unit more than 24 months, and those working shift work were predictive of high cynicism. There was no association between gender and increased rates of cynicism. Line leaders in particular should pay attention to expressions of cynicism among their work force, as it is often readily expressed in everyday verbal dialogue. Frequent expressions of cynical commentary could be indicative of declining motivation and occupational interest. Line leadership should consider operational intervention and/or mental health support if frequent expression of cynicism is prevalent within their units.

5.2.3 Low Professional Efficacy. Professional efficacy is a sense of being effective at work and experiencing a sense of occupational accomplishment. A low level of professional efficacy can lead to problematic work performance due to exhaustion and other issues (e.g., lack of resources and training to accomplish tasks). The results of this study revealed that 70 ISRW intelligence operators (7.96%) were more likely to report lower levels of professional efficacy than their support personnel counterparts (4.88%). This was not the case for the 480 ISRW, for which the rate of low professional efficacy among DCGS intelligence operators and support personnel was largely the same (6.05% and 6.48%, respectively).

When comparing low professional efficacy within 70 ISRW overall to that of other virtual warrior communities, the 70 ISRW appears to have a similar rate of low professional efficacy to that of the cyber warfare operators (6.82% – 7.5%), but a notably higher rate than that of the active duty RPA operator population (approx. 4%). This suggests that as a group, 70 ISRW personnel may feel a low sense of accomplishment and mission effectiveness in their day-to-day work.

An interesting gender-related finding emerged from the 70 ISRW data from this study. The finding revealed females were more likely to experience low professional efficacy. This unique demographic finding raises many questions about gender roles in and out of the workplace. It may also be suggestive of challenges inherent to work-life balance and the tendency for women to bear a larger proportion of the domestic life burden, while at the same time sustaining full-time employment outside of the home. Further research is warranted in this area, as the services seek to implement a sabbatical process for new mothers. Line leaders should be cognizant of this dynamic as they seek to better understand their manpower and find ways to optimize work force strategies.

5.2.4 Overall Burnout. The percentage of individuals endorsing high exhaustion, high cynicism, and low professional efficacy is indicative of the percentage of individuals experiencing overall burnout. A total of 21 out of 1,213 (1.73%) intelligence operators and 7 out of 594 (1.18%) support personnel endorsed all three facets at levels indicating overall burnout. The percentages for intelligence operators and support personnel are similar to that observed in the 480 ISRW study (2.50% for DCGS intelligence operators and 1.57% for support personnel) [6,7]. While these numbers and percentages are low, leadership should be aware of burnout within units and educate themselves on the warning signs of burnout in their Airmen. Overall, data regarding burnout have not yet been published for RPA or cyber operators, but is an area for future comparative research.

5.3 Psychological Distress (OQ-45.2)

5.3.1 Elevated Psychological Distress. Psychological distress is a state of various emotional, behavioral, relational, and physical symptoms of stress in response to what can be a wide range of conditions. Overall, 70 ISRW intelligence operators were more likely to report elevated levels of psychological distress (12.14%) when compared with their support personnel counterparts (7.48%). These results are largely consistent with an earlier 480 ISRW study assessing rates and levels of psychological distress among DCGS intelligence operators (14.35%) and support personnel counterparts (8.60%) [6]. Other comparisons with virtual warrior communities suggest that the psychological distress rate among 70 ISRW intelligence operators is similar to that of cyber warfare operators (14%) but higher than that of RPA operators (11%). The 70 ISRW support personnel report a rate of psychological distress that is highly consistent with previously reported AF support and logistics trends (9%) [13-15]. The results of this study further suggest that specific demographic and operational factors are highly associated with elevated psychological distress among 70 ISRW intelligence operators. The results of the study found that Airmen were who were enlisted, single, and/or working shift work (swing or night shift) were more likely to report experiencing elevated levels of psychological distress. Such findings may help raise situational awareness among line and medical leadership regarding those who are at increased risk, or who may benefit from additional outreach from line unit support, and access medical and mental health providers.

5.3.2 Symptom Distress. Assessing for symptom distress focuses attention on indicators of more significant emotional disorders, such as anxiety and/or depression. Intelligence operators from the 70 ISRW endorsed nearly twice the rate of symptom distress (10.40%) than support personnel (5.78%) and are 1.62 times more likely to report elevated symptom distress than their support counterparts. These findings are supported by open text comments provided by survey respondents who indicated current or desired treatment for anxiety and depression. Approximately 25% of 70 ISRW personnel who endorsed elevated levels of symptom distress also reported receiving treatment for anxiety or depression from local medical or mental health providers.

5.3.3 Interpersonal Relations Distress. Assessing interpersonal relations distress focuses on identifying difficulties in how one relates to those with whom they have close personal relationships (i.e., spouses, significant others, children, etc.). It is characterized by complaints such as loneliness, conflicts with others, as well as family and marital problems.

Overall, 70 ISRW intelligence operators endorsed a very similar rate of interpersonal relationship distress (18.41%), as did support personnel (15.14%), with no statistically significant difference between the groups. However, closer examination of intelligence operators with specific demographic and operational characteristics did reveal an increased likelihood of reporting high levels of interpersonal relationship distress. Those who were enlisted, single, or working shift work (swing or night shift) were more likely to report elevated levels of interpersonal relations distress. Line and medical leadership should be cognizant of these risk factors and should look for them as they interact with 70 ISRW operators, whether in formal or informal capacities.

5.3.4 Social Role Distress. Assessing social role distress focuses on identifying difficulties in effectively managing one's public and/or professional roles and interactions. It is often characterized by complaints of work stress and dissatisfaction, as well as the diminished ability to effectively interact with others at work.

Overall, 70 ISRW intelligence operators endorsed a similar rate of social role distress (23.45%), as did their support personnel counterparts (21.09%). These findings suggest that approximately one out of every five 70 ISRW personnel experience elevated social role distress. This is a profoundly significant finding, which line leaders should consider as a cue to examine the workplace dynamics being faced by 70 ISRW personnel, since they regularly interface with elements of the various national intelligence agencies. This finding should also be considered in concert with the previously reported sources of stress experienced by 70 ISRW personnel overall, which included organizational leadership and communication, organizational management, workload, manning, and administrative support.

Although there was no statistically significant difference between the intelligence operator and support personnel groups, closer examination was done to identify predictors for elevated social role distress among intelligence operators. The results of the study revealed that Airmen who are enlisted, working in one's current unit more than 24 months, working shift work (i.e., swing or night shift), or working 51 or more hours a week were more likely to report elevated levels of social role distress. Considering the largely operational nature of these factors, line leaders should be as proactive as possible in their efforts to mitigate stressors. However, understanding the relationship dynamic between 70 ISRW units as they relate to operational activity in the national agencies' architectures, where service leaders can have less of an impact on effecting larger organizational change, line leaders should look to collaborate with medical and mental health providers on interventions for personnel that fall into the more high-risk categories.

5.4 Post-Traumatic Stress Symptoms

Results of the study showed that there were no differences in the overall group scores or prevalence rate of high PTSD symptomology when comparing intelligence operators (1.91%) to support personnel (1.87%) within the 70 ISRW. These results are similar to endorsement rates of high PTSD symptomology within the 480 ISRW among DCGS intelligence operators (2.49%) and support personnel (2.06%) [7]. These rates are consistent with RPA operators (2.0%), but higher than PTSD rates within the USAF support and logistics arenas (1.0%) [6,14,15].

Although there were no between-group differences, the study results revealed intelligence operators who had been working for 24 months or longer in their current unit or working 51 or more hours a week were at increased risk for high levels of PTSD. Although the overall incidence of high PTSD is low, the threshold used in this study is considered conservative, identifying those with the greatest likelihood of receiving a clinical PTSD diagnosis. Leadership should be cognizant of the emotional impacts presented by the operational work dynamic and should be aware of the key risk indicators associated with emotional distress and PTSD.

5.5 Recommendations

The findings in this study suggest that sources of high occupational stress among 70 ISRW intelligence operators are operational in nature and are similar to the 480 ISRW and other military organizations required to sustain 24-hour operations with limited manpower. However, the multi-faceted organizational construct through which 70 ISRW personnel must operate prohibits USAF leadership from implementing key mitigating factors as they pertain to the operational arena (i.e., organizational management, manning and workload distribution), since this level of control falls within the authoritative domain of the supported national agencies. Under such circumstances, actionable mitigation efforts may be limited to service-specific administrative dynamics, the fostering of improved inter-organizational coordination and communication, and the facilitation of mental health and support interventions to aid in the well-being of USAF personnel.

Aside from streamlining service-specific tasking, a program to train supervisors in a distributed work environment could go far in improving the quality and timelines of service-specific tasks and potentially reduce the additional work hours associated with accomplishing those requirements. Key components to this training should include relationship development skills and establishing performance goals and expectations between supervisors and subordinates. Promotion of strong character and leadership is key, as is the cultivation of strong communications skills, especially since a distributed work environment is highly reliant upon such capabilities.

Service leaders should seek to foster and model a health promotion culture centered on actionable programs (healthy habits, physical and mental fitness). Although there may be various processes and agency-provided resources in place to identify and assist intelligence operators with managing elevated levels of distress, an additional strategy to consider is the appointment of experienced mental health providers with top secret security clearances, where needed, to provide dedicated mental health support. Based on models used in the flying and special operations communities, such a strategy would likely help increase the understanding of (as well as developing mitigation strategies for) organizational and occupational-specific stressors affecting intelligence operators, as well as increase their access to mental healthcare.

A mental health provider educated in the culture and dynamics of the intelligence mission area and co-located with operators may also help promote understanding and self-disclosure among those Airmen experiencing burnout and distress. Reluctance to disclose mental health concerns is typical and frequent within the intelligence field, although certainly not unique to this community. A mental health strategy that mitigates obstacles to self-disclosure is essential to providing outreach for mental health problems among military members in general. However, it may be especially so when interacting with a community whose duties require the sustainment of high security clearances and whose career progression may be affected by untimely and prolonged periods of psychological distress.

5.6 Limitations

The current study was the first occupational health study for the 70 ISRW, and while we were able to consider previous studies on the 480 ISRW, there are no previous studies of this wing to compare with current results. The following limitations were considered:

(a) Statistical analyses do not warrant definitive cause-effect conclusions between demographic and occupational factors and elevated levels regarding the facets of burnout, psychological distress, and symptoms of PTSD.
(b) Although conservative thresholds were developed for identifying personnel with elevated levels on the facets of burnout, psychological distress, and PTSD, it is difficult to determine which operators are experiencing chronic versus situational-specific conditions.
(c) Other intelligence personnel within the AF or other armed services may have unique differences in operations tempo, platform interface, and inter-organizational dynamics; therefore, results should not be generalized to these other areas.
(d) Self-reported surveys are prone to response bias from a self-selected sample, which might affect generalization of results.

Whenever assessing for the impact within an organization, it is always a possibility there will be sampling bias. This bias occurs because those individuals experiencing distress and wanting to expose their concerns are perceived to be more likely to participate. While this is often viewed as negative sampling bias, one cannot lose sight of the purpose of this survey. The survey is designed to expose those who are at risk for experiencing elevated psychological distress and/or PTSD, and the results should be viewed from within that framework. Sampling bias is not necessarily a negative if it helps reveal the intended, at-risk population. While bias could reduce generalizability to the population at large, it may also have the beneficial effect of exposing exactly what the survey was designed to assess. Although response rates for online surveys can often be lower than paper-based surveys, the online response rate for this study was notably higher than that found in several analyses comparing mean response rates of in-person versus online surveys [25-27]. Despite these limitations, the current study provides the first overview of burnout, clinical distress, and PTSD symptomology for the 70 ISRW.

5.7 Conclusions

The findings of this occupational stress study raise awareness to the most commonly reported sources of occupational stress and rates of elevated levels of burnout, distress, and PTSD symptomology among 70 ISRW intelligence operators and support personnel. Both intelligence operators and support personnel have top reported sources of stress that are mainly operational in nature and highlight certain factors that may be improved by line leadership intervention. Both intelligence operators and support personnel also tend to report personal and home life stressors. Comparisons between intelligence operators and support personnel on general levels of burnout, clinical distress, distress subscales, or PTSD symptomology were not significant. However, when looking more closely at those endorsing clinical thresholds for facets of burnout and clinical distress, intelligence operators endorsed high exhaustion, high cynicism,

low professional efficacy, elevated levels of clinical distress, and high symptom distress more often than support personnel.

Although the percentage of high PTSD symptomology for intelligence operators and support personnel was low (2%, lower than the general civilian population at 5.0%) [28] any percentage is of concern because these Airmen are increasingly relied upon to carry out and support a wide range of ISR and combat-related interagency missions. Therefore, while operational and personal stressors emerged as the most reported sources of occupational stress, combat-related stressors should not be overlooked by operational and medical leaders when assessing the well-being of 70 ISRW personnel.

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LIST OF ABBREVIATIONS AND ACRONYMS

AFB	Air Force base
ANCOVA	analysis of covariance
CI	confidence interval
DCGS	distributed common ground system
EMM	estimated marginal mean
ISRW	intelligence, surveillance, and reconnaissance wing
MBI-GS	Maslach Burnout Inventory-General Survey
OQ-45.2	Outcome Questionnaire 45.2
PCL-M	PTSD Checklist-Military Version
PTSD	post-traumatic stress disorder
RPA	remotely piloted aircraft
RR	relative risk
SD	standard deviation
SME	subject matter expert
USAF	U.S. Air Force